
ग्रीज़ संख्या 0, ग्रैफाइटड — विशिष्ट
(तीसरा पुनरीक्षण)

**Grease No. 0, Graphited —
Specification**
(*Third Revision*)

ICS 75.100

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FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Lubricants and their Related Products Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This Standard was first published in 1952 and subsequently revised in 1973 and 1981.

In the second revision, requirements for drop point, oil separation on storage and graphite flake content were incorporated in Table 1 in order to reflect the improved quality of the material generally required by the defence authorities in the country.

In this third revision, clauses for references and marking have been updated.

The composition of the technical Committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*).' The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GREASE NO. 0, GRAPHITED — SPECIFICATION

(Third Revision)

1 SCOPE

This standard prescribes the requirements and methods of sampling and test for grease No. 0, graphited, used for lubricating small arms and certain other equipment, as well as for rust proofing.

2 REFERENCES

The following standards contain provisions which through reference in this text constitute the provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
494 : 1970	Aluminium stearate for lubricants (<i>first revision</i>)
495 : 1967	Graphite, flake for lubricants (<i>first revision</i>)
1447 (Part 1) : 2000	Petroleum and its Products — Methods of Sampling — Part 1 Manual Sampling (<i>first revision</i>)
1448	Methods of tests for petroleum and its products
[P : 4/Sec 1] : 2008	Petroleum products — Determination of ash (<i>second revision</i>)
[P : 25/Sec 1] : 2018/ISO 3104 : 1994	Transparent and opaque liquids Section 1 Determination of kinematic viscosity and calculation of dynamic viscosity (<i>second revision</i>)
[P : 51] : 1963	Copper strip corrosion test for lubricating greases
[P : 52] : 2017/ISO 2176 : 1995	Drop point (<i>second revision</i>)
[P : 58] : 1991	Determination of insolubles in greases (<i>first revision</i>)

[P : 59] : 1991	Determination of mineral oil content in greases (<i>second revision</i>)
[P : 60] : 1994	Consistency of lubricating greases by cone penetrometer (<i>second revision</i>)
[P : 61] : 1974	Evaporation loss in greases (2 hour drying) (<i>first revision</i>)
[P : 69] : 2013/ISO 2592 : 2000	Determination of flash and fire points — Cleveland open cup method (<i>first revision</i>)
[P : 85] : 1976	Oil separation on storage of greases

3 REQUIREMENTS

3.1 Description

The material shall be smooth, dark grey, homogeneous and free from grit or other visible impurities, and shall not show any signs of breakdown, hardening or tendency of the constituents to separate. In addition, the material shall also be free from any objectionable odour.

3.2 Composition

The material shall be prepared from the following ingredients in such proportions as to comply with the requirements prescribed in Table 1.

3.2.1 Mineral Lubricating Oil

The mineral lubricating oil extracted from grease by method 'A' prescribed in IS 1448 [P : 59] shall comply with the following requirements:

<i>Sl No.</i>	<i>Characteristic</i>	<i>Requirement</i>	<i>Method of Test,</i> <i>Ref to (Part) of IS 1448</i>
i)	Kinematic viscosity in mm ² /s ¹ at 40 °C	41.4 to 50.6	[P : 25/Sec 1]
ii)	Flash point, °C, <i>Min</i>	160	[P : 69]

3.2.2 Aluminium Soap

NOTE — Any soap other than aluminium may also be used, if agreed to between the purchaser and the supplier.

3.2.3 Graphic Flake

6 to 10 percent by mass (conforming to IS 495).

3.3 For Defence Purposes

The proportion of the ingredients shall be as follows:

<i>Ingredient</i>	<i>Percent by Mass</i>	<i>Conforming to</i>
Mineral oil	81 to 82	3.2.1
Aluminium stearate	12	IS 494
Graphite flake	6 to 7	IS 495

3.4 Keeping Quality (Shelf Life)

The keeping quality of the material shall be such that when stored in original sealed containers, under normal conditions, it shall retain the properties given in the specification for not less than one year from the date of delivery of the product.

3.5 The material shall also comply with the requirements given in Table 1 when tested according to the methods given in 'Part' series of IS 1448 and annexes, in col 4 of Table 1.

4 PACKING AND MARKING**4.1 Packing**

The material shall be packed in suitable, clean, dry, leak proof containers free rust, as agreed to between the purchaser and the supplier.

4.2 Marking

Material shall be marked with the following information:

- Name and type of material;
- Manufacturer's name, initials or trade-mark, if any;
- Net mass of material;
- Identification in code or otherwise to enable the lot of consignment or manufacture to be traced back from records; and
- Any other statutory requirements.

4.2.1 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

5 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 1447 (Part 1).

5.1 Number of Tests

All characteristics given in the specification shall be tested on the composite sample.

5.2 Criteria for Conformity

Tests for consistency and resistance to breakdown shall be done in individual samples and other tests on composite sample. The lot shall be declared satisfactory only if all individual and composite samples satisfy the requirements of this standard.

Table 1 Requirements for Grease No. 0, Graphited
(Clauses 3.2 and 3.5)

SI No.	Characteristic	Requirements	Methods or test, Ref to [P:] of IS 1448 / Annex
(1)	(2)	(3)	(4)
i)	Moisture and volatile matter, percent by mass, <i>Max</i>	1.0	[P : 61]
ii)	Penetration of worked material at 25 ± 0.5°C (60 double Strokes)	300.0 to 350.0	[P : 60]
iii)	Drop point, °C, <i>Min</i>	88	[P : 52]
iv)	Ash, percent by mass, <i>Max</i>	2.0	[P : 4/Sec 1] (Method B ₁)
v)	Copper strip corrosion test, at 7°C for 24 h	Negative	[P : 51]
vi)	Oil separation, at 25°C for 168 h, percent by mass, <i>Max</i>	5	[P : 85]
vii)	Graphite flake content, percent by mass, <i>Min</i>	6	[P : 58]
viii)	Inorganic acidity	Shall pass the test	A
ix)	Resistance to breakdown or tendency of the constituents to separate	do	B

ANNEX A[Table 1, *Sl No.* (viii)]**TEST FOR INORGANIC ACIDITY****A-1 REAGENT**

A-1.1 Methyl Orange Indicator — Dissolve 1g of methyl orange in 1 litre of distilled water.

A-2 PROCEDURE

A-2.1 Weigh 50 g of the material, accurately to the nearest 1 g, into a separating funnel. Neutralize 100 ml

of water, using methyl orange indicator. Heat this neutralized water to 70°C and then add it to the material in the funnel. Extract the mixture thoroughly by shaking. Allow to stand for the oil and aqueous layer to separate.

A-2.1.1 The material shall be taken to have passed the test, if the aqueous layer does not show acid reaction to methyl orange indicator.

ANNEX B[Table 1, *Sl No.* (ix)]**TEST FOR RESISTANCE TO BREAKDOWN****B.1 PROCEDURE**

B.1.1 Mould 10 g of the material into the form of a cone on a small clock glass and maintain at 75°C for 1 h and then examine.

B-1.2 The material shall be taken to have passed the test, if there is no separation of oil or other visible sign of breakdown.

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Lubricants and their Related Products Sectional Committee, PCD 25

<i>Organization</i>	<i>Representative(s)</i>
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